

Application No. 09/729,118

RD-27953-1

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**RESPONSE UNDER 37 CFR §1.116  
EXPEDITED PROCEDURE  
EXAMINING GROUP 1627**

**APR 15 2004**

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

**OFFICIAL**

In re Application of

James N. Cawse

Serial No. 09/729,118

: Group Art Unit: 1627

Filed: December 4, 2000

: Examiner: J.D. Epperson

For PERMEABLE REACTOR PLATE AND METHOD

**FACSIMILE TRANSMITTAL COVER SHEET**

To: Examiner: J.D. Epperson  
Group Art Unit: 1627  
TC 1600

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- (1) REQUEST FOR RECONSIDERATION AFTER FINAL REJECTION  
UNDER 37 C.F.R. §1.116 (11 pages) and (2) MPEP 706.07(c) AND MPEP  
706.07(d) REQUEST TO WITHDRAW FINAL REJECTION (4 pages)

Respectfully submitted,



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**15 APR** 2004

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For **PERMEABLE REACTOR PLATE AND METHOD**

**REQUEST FOR RECONSIDERATION AFTER FINAL REJECTION UNDER 37  
C.F.R. §1.116**

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Sir:

Claims 1 to 7, 10, 16 and 37 to 40 are pending. The March 23, 2004 Final Rejection rejected claims 1 to 7, 10, 16 and 37 to 39 under 35 U.S.C. §103(a), claim 50 under 35 U.S.C. 112, first paragraph and claims 1 to 7, 10 and 37 under 35 U.S.C. §102. Reconsideration of the rejections is requested for the following reasons.

**I. 35 U.S.C. §103(a) REJECTION**

Claims 1 to 7, 10, 16 and 37 to 39 were rejected under 35 U.S.C. 103(a) over Eigen et al., Bottenbruch et al and Bayer product listing. A "permeable polycarbonate film covering at least one cell to selectively permit transport of a reactant gas comprising oxygen and carbon monoxide into the at least one cell while preventing transport of a diaryl carbonate reaction product..." (hereinafter at times abbreviated as "diaryl carbonated selective permeation") is new and unobvious and this rejection should be withdrawn for at least the following reasons.

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### A. IMPROPER COMBINATION OF REFERENCES

The Eigen et al., Bottenbruch et al and Bayer product listing references are not properly combinable.

The references are from desperate art fields and the PTO has not provided the "reason to combine" showing required by *In re Lee*, 277 F.3d 1338, 1343, 61 USPQ 2d 1430, 1433-1434 (Fed. Cir. 2002) to properly combine the teachings to support a combination of references rejection.

First, a reference that teaches only "membranes in permeation installations for the selective separation of certain gases or liquids from gas mixtures or liquid mixtures" (Bottenbruch et al.) and a reference that only lists properties of a polycarbonate film (the Bayer product listing) are not "reasonably pertinent" to equipment for "combinatorial investigation of the catalytic production of aromatic carbonates." The references are not properly combinable with the Eigen et al. reference as analogous art. See *In re Clay*, 23 USPQ2d 1058, 1060 (Fed. Cir. 1992).

Furthermore, to establish a prima facie case of obviousness based on a combination of references, the PTO must provide an:

...objective teaching... [that] would lead [one skilled in the art] to combine the relevant teachings of the references." *In re Fritch*, 972 F.2d 1260, 1265, 23 USPQ2d 1780, 1783 (Fed. Cir. 1992)

... "When patentability turns on the question of obviousness, the search for and analysis of the prior art includes evidence relevant to the finding of whether there is a teaching, motivation, or suggestion to select and combine the references relied on as evidence of obviousness. See, e.g., McGinley v. Franklin Sports, Inc., 262 F.3d 1339, 1351-52, 60 USPQ2d 1001, 1008 (Fed. Cir. 2001) ("the central question is whether there is reason to combine [the] references," a question of fact drawing on the Graham factors)."

....

...The Board [PTO] must identify specifically the principle, known to one of ordinary skill that suggests the claimed combination. In other words, the Board must explain the reasons one of ordinary skill in the art would have been motivated to select the references and to combine them to

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render the claimed invention obvious."); *In re Fritch*, 972 F.2d 1260, 1265, 23 USPQ2d 1780, 1783 (Fed. Cir. 1992) (the examiner can satisfy the burden of showing obviousness of the combination "only by showing some objective teaching in the prior art or that knowledge generally available to one of ordinary skill in the art would lead that individual to combine the relevant teachings of the references").

*In re Lee*, *supra* 277 F.3d at 1343, 61 USPQ 2d at 1433-1434.

In response to this important requirement, the March 23, 2004 Final Rejection in this case states:

For example, a person of skill in the art would have been motivated to use the "Makrofol BL" polycarbonate film because of its favorable physical and/or chemical properties (e.g., see Bayer, page 2, column 2, "Makrofol BL is noted for its good dimensional stability at high temperatures").

The PTO states that "a person of skill in the art would have been motivated" to make the combination but the PTO does not point to support for this conclusion in the references. The PTO fails to identify, for example, a need for any of the "good" Bayer product listing properties (a suggestion or motivation to combine) in *Eigen et al* or *Bottenbruch et al*. The *In re Lee* legal requirement to support a combination rejection is an "... objective teaching... [that] would lead [one skilled in the art] to combine the relevant teachings of the references" (emphasis added), *In re Fritch*, 972 F.2d 1260, 1265, 23 USPQ2d 1780, 1783 (Fed. Cir. 1992), not a conclusory, subjective observation of the PTO.

The March 23, 2004 Final Rejection continues:

The Examiner contends that these favorable physical and/or chemical properties represent strong motivation to combine said references because a "beneficial result" would have been produced by their combination e.g., see *In re Sernaker*, 702 F.2d 989, 994-95, 217 USPQ 1, 5-6 (Fed. Cir. 1983). Here, the beneficial result is the formation of plastic plates with "thermally stable" polycarbonate film coverings. The plates of *Eigen et al*. are designed to rapidly undergo changes in temperature (e.g., see *Eigen et al*.. column 2, especially lines 60-68, "This solves the object of the invention in full ... Due to the small wall thickness and the large heat-exchanging surface, rapid heat exchange is guaranteed through the wells. When the heat-exchanging surface of the wells is brought into contact with a heating or cooling substance having a temperature different that that of the solutions contained in the wells, the latter will assume the new

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temperature within the time of a few second"). Thus, the Makrofol BL polycarbonate film covering would be especially beneficial when combined with these "heat-exchanging" plates of Bigen et al., because the film will not break down during these rapid temperature changes.

But again, the conclusions of the PTO that the Bayer listed polycarbonates would be "especially beneficial," does not flow from any Eigen et al or Bottenbruch et al prior art teaching of a need for increased "thermally stable" polycarbonate. The PTO reasoning is based on "conclusory statements" ("the examiner contends") not on "objective" or "relevant" teachings of the prior art as required by *In re Lee*.

The PTO is specifically requested to state where the motivation to combine teachings appears in the references or withdraw the rejection. This request is made so that this issue will be clear for the purpose of appeal. See MPEP 707.07, entitled "Completeness and Clarity of Examiner's Action," providing that "[t]he examiner must address all arguments which have not already been responded to in the statement of the rejection." Further MPEP 707.07(f) entitled "Answer All Material Traversed" states "Where the applicant traverses any rejection, the examiner should, if he or she repeats the rejection, take note of the applicant's argument *and answer the substance of it*" (emphasis added).

The 35 U.S.C. 103(a) rejection is based on a selective picking and choosing of features in secondary references, without any basis in the references for doing so. The rejection is supportable only through hindsight. See *In re Deuel*, 34 USPQ2d 1210, 1215 (Fed. Cir. 1995). Unless the PTO can meet the required *In re Lee* "logical and rational" reasoning to combine, based on teachings in the prior art, the rejection must be withdrawn.

#### B. NO PRIMA FACIE CASE OF OBVIOUSNESS

Further even improperly combined, the references do not establish a *prima facie* case of obviousness. "A *prima facie* case of obviousness is established when the teachings from the prior art itself would appear to have suggested the claimed subject matter to a person of ordinary skill in the art...." *In re Rijckaert*, 28 USPQ2d 1955, 1956 (Fed. Cir. 1992).

The references do not teach or suggest: (1) a "permeable polycarbonate film

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sealed to cover at least one cell" that "selectively permit(s) transport of a reactant gas comprising oxygen and carbon monoxide into the at least one cell while preventing transport of a diaryl carbonate reaction product out of the at least one cell" ("diaryl carbonated selective permeation") claims 1 to 7, 10, 16 and 37 to 38); (2) a diffusion coefficient of " $5 \times 10^{-10}$  to  $5 \times 10^{-7}$  cc(STP)-mm/cm<sup>2</sup>-sec-cmHg" (claim 2); (3) a diffusion coefficient of " $1 \times 10^{-9}$  to  $1 \times 10^{-7}$  cc(STP)-mm/cm<sup>2</sup>-sec-cmHg" (claim 3); (4) coefficient of " $2 \times 10^{-8}$  to  $2 \times 10^{-6}$  cc(STP)-mm/cm<sup>2</sup>-sec-cmHg." (claim 4) or (5) two opposing walls comprising sealed permeable polycarbonate film" (claim 37).

The Office Action page 5 argues with regard to (1) that a film that "selectively permit(s) transport of a reactant gas comprising oxygen and carbon monoxide into the at least one cell while preventing transport of a diaryl carbonate reaction product out of the at least one cell" (claims 1 to 7, 10, 16 and 37 to 38, herein called "selective permeability") is a functional limitation. Applicant has pointed out that this argument is incorrect. See Applicants' December 17, 2003 Amendment. The PTO cites the MPEP §2114 relating to apparatus claims. However, the distinguishing claim 1 "diaryl carbonated selective permeation" limitation is not an apparatus; the recited language is not functional; it is a descriptive physical property ("diaryl carbonated selective permeation").

The PTO states that the references never "explicitly state that their polycarbonate films would not be permeable to larger hydrocarbons like diaryl carbonate..." This is correct. But the issue is what the references teach not what they do not teach. And indeed, the references do not teach or suggest a plate with a cell covered with "a film that "selectively permit(s) transport of a reactant gas comprising oxygen and carbon monoxide into the at least one cell while preventing transport of a diaryl carbonate reaction product out of the at least one cell" ("diaryl carbonated selective permeation") (claims 1 to 7, 10, 16 and 37 to 38).

In response to this notable deficiency in the prior art teachings, the PTO argues that Bottenbruch et al. and the Bayer product listing teach the same polycarbonate material and the same thickness as that claimed by applicants." But, Applicant has

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carefully examined the references and is unable to ascertain any "same polycarbonate" teaching and the PTO has failed to establish what thicknesses provide what permeability from the prior art.. In chemistry, properties unpredictably vary with particular chemical constituency, notably within a broad chemical class such as "polycarbonate." A teaching of a same polymer class (polycarbonate) and a same thickness is not a teaching of a film with the specific selective permeability property recited in the claims.

Again, the PTO is requested to state on the record where the "diaryl carbonated selective permeation" claim limitation appears in the references so that this issue is clear for the purpose of appeal. See MPEP 707.07 and particularly MPEP 707.07(f).

Finally, the Office Action states that Eigen et al. discloses "two opposing walls." However, the Office Action does not address the *claim limitation* of "two opposing walls comprising permeable polycarbonate film" (claim 37, emphasis added). While not clear, the PTO may be relying on a teaching of momentary opposing walls as a film is subjected to hot gas flow in the Eigen et al. deforming process. However at that instant, the momentary opposing walls are not permeable (against a positive deforming flow) and are not sealed. Eigen et al. does not teach or suggest "two opposing walls comprising permeable polycarbonate film" (claim 37).

"If examination... does not produce a *prima facie* case of unpatentability, then without more the applicant is entitled to grant of the patent." *In re Oetiker*, 24 USPQ2d 1443, 1444 (Fed. Cir. 1992). "When the reference(s) cited by the examiner fail to establish a *prima facie* case of obviousness, the rejection is improper and will be overturned." *In re Deuel*, 34 USPQ2d 1210, 1214 (Fed. Cir. 1995).

Eigen et al, Bottenbruch et al and the Bayer product listing do establish a *prima facie* case of obviousness of (1) a "permeable polycarbonate film sealed to cover at least one cell" that "selectively permit(s) transport of a reactant gas comprising oxygen and carbon monoxide into the at least one cell while preventing transport of a diaryl carbonate reaction product out of the at least one cell " (claims 1 to 7, 10, 16 and 37 to 38); (2) a diffusion coefficient of " $5 \times 10^{-10}$  to  $5 \times 10^{-7}$  cc(STP)-mm/cm<sup>2</sup>-sec-cmHg" (claim 2), (3) a diffusion coefficient of " $1 \times 10^{-9}$  to  $1 \times 10^{-7}$  cc(STP)-mm/cm<sup>2</sup>-sec-cmHg" (claim 3);

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(4) coefficient of " $2 \times 10^{-8}$  to  $2 \times 10^{-6}$  cc(STP)-mm/cm<sup>2</sup>-sec-cmHg." (claim 4) or (5) two opposing walls comprising sealed permeable polycarbonate film" (claim 37).

The rejection of claims 1 to 7, 10, 16 and 37 to 39 under 35 U.S.C. 103(a) over Eigen et al., Bottenbruch et al and the Bayer product listing should be withdrawn.

## II. 35 U.S.C. §112, FIRST PARAGRAPH REJECTION

The Final Rejection rejected claim 40 under 35 U.S.C. §112, first paragraph. The Office Action argues that the specification does not support the claim 40 limitation "wherein at least one other cell is covered with a different film."

The PTO's attention is respectfully directed to the specification, page 4, lines 5 to 14, stating:

FIG. 1 shows a top view of a preferred reactor plate and FIG. 2 shows a cut-away front view through line A-A of the plate of FIG. 1. FIG. 1 and FIG. 2 show reactor plate 10 that includes an array 12 of reaction cells 14 embedded into a supporting substrate 16 of the plate 10. Each cell 14 is shown covered with a permeable film 18. Each cell 14 can be covered with the same film 18 or *each cell can be covered with a different film to provide different reaction characteristics to different cells 14.* Further, in another embodiment, selected cells 14 can be covered with film while other cells 14 are left uncovered to provide still different reaction characteristics. (Emphasis added.)

The 35 U.S.C. §112, first paragraph rejection of claim 40 should be withdrawn. It is noted that the 35 U.S.C. §112, first paragraph rejection is the sole rejection of claim 40. Hence, claim 40 should be allowable.

## III. 35 U.S.C. §102 REJECTION

Claims 1 to 7, 10 and 37 were rejected under 35 U.S.C. §102(a) and (c) over Hirahara et al.

A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference." *Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed.



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Cir. 1987).

The claims claim (1) a plate for combinatorial investigation of the catalytic production of aromatic carbonates (all claims); (2) a substrate comprising an array of reaction cells (all claims); (3) a permeable polycarbonate film scaled to cover at least one cell to selectively permit transport of a reactant gas comprising oxygen and carbon monoxide into the at least one cell while preventing transport of a diaryl carbonate reaction product out of the at least one cell (all claims); (4) the permeable polycarbonate film selectively admits transport of oxygen and carbon monoxide and prohibits transport of a diaryl carbonate; (5) a diffusion coefficient of " $5 \times 10^{-10}$  to  $5 \times 10^{-7}$  cc(STP)-mm/cm<sup>2</sup>-sec-cmHg" (claim 2), (6) a diffusion coefficient of " $1 \times 10^{-9}$  to  $1 \times 10^{-7}$  cc(STP)-mm/cm<sup>2</sup>-sec-cmHg" (claim 3); (7) coefficient of " $2 \times 10^{-8}$  to  $2 \times 10^{-6}$  cc(STP)-mm/cm<sup>2</sup>-sec-cmHg" (claim 4); (8) two opposing walls comprising sealed permeable polycarbonate film" (claim 37); or (9) a heat sealed film (claim 38). [F]unctional language... is allowed in claims and is entitled to full weight in claim analysis." In re Swinhart, 439 F.2d 210, 169 USPQ 226(C.C.P.A. 1971).

Hirahara et al. does not teach or suggest any of the (1) to (9) claim elements. For example, 26a is a *slotted* stamper; not "an array of reaction cells." If the PTO disagrees, the PTO is respectfully requested to specifically identify the Hirahara et al. disclosure that purportedly anticipates claim elements (1) through (9) in accordance with 37 CFR 1.104 or withdraw the 35 U.S.C. 102 rejection. See *In re Fine*, 837 F.2d 1071, 1074, 5 USPQ2d 1596, 1598 (Fed. Cir. 1988).

#### IV. PREMATURE FINAL REJECTION

The March 23, 2003 Final Rejection states "Applicant's arguments filed May 30, 2003 have been fully considered but they are not persuasive for the reasons of record and the following comments." This is an incorrect standard for patent examination. A 35 U.S.C. 103(a) rejection is based on 35 U.S.C. 102(a) stating "A person shall be entitled to a patent *unless* (a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for patent..." (emphasis added). A patent must be issued unless

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the PTO establishes a reason not to issue the patent; for example, by establishing a *prima facie* case of obviousness. With respect to a *prima facie* case, MPEP 2142 points out that:

.... The examiner bears the initial burden of factually supporting any *prima facie* conclusion of obviousness. If the examiner does not produce a *prima facie* case, the applicant is under no obligation to submit evidence of nonobviousness.

MPEP 2142.

Hence, the issue is not whether "Applicant's argument has been .... found to be unpersuasive." The issue is whether the PTO has met its burden of establishing a *prima facie* case of obviousness. In this case, the PTO has not met this burden. The rejections are based on improper combinations of references without the motivation to combine required by *In re Lee*, 277 F.3d 1338, 61 USPQ 2d 1430 (Fed. Cir. 2002). Additionally, even improperly combined, the references do not make out a *prima facie* case of obviousness. See *In re Deuel*, 34 USPQ2d 1210 (Fed. Cir. 1995). The rejections should be withdrawn and the application examined in accordance with law.

Additionally, the PTO has failed to point out where the *In re Lee* motivation to combine, appears in the references and where the teachings (1) through (5) are found in the references.

The MPEP 2271 states:

.... The grounds of rejection must (in the final rejection) be clearly developed to such an extent that the patent owner may readily judge the advisability of an appeal....

Further, 37 C.F.R. § 1.104 entitled "Nature of Examination" provides that "[t]he examiner's action will be complete as to all matters...."

The PTO has applied an incorrect standard of examination and has not pointed out in the references, the required *In re Lee* reasoning to combine and has failed to point out in the references the (1) to (5) teachings. The Final Rejection is incomplete and should be withdrawn and the claims properly examined and allowed or another office action

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issued to address *in the references*, the *In re. Lee* reasoning to combine and (1) to (5) in a non-final office action.

In this respect, Applicants include with this Amendment, an MPEP 706.07(c) AND MPEP 706.07(d) REQUEST TO WITHDRAW FINAL REJECTION addressed to the Primary Examiner.

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**V. CONCLUSION**

In view of all the foregoing remarks, it is respectfully submitted that claims 1 to 7, 10, 16 and 37 to 40 are allowable. Reconsideration and allowance are requested.

Should the Examiner believe that any further action is necessary in order to place this application in condition for allowance, he is requested to contact the undersigned at the telephone number listed below.

Respectfully submitted,



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